



# Project Overview

September 6, 2011 – 7:00 pm

Comprehensive Energy Management Services



Presented To:

## Town of Grafton – Board of Selectman

Municipal and School Facilities

Presented By:

Doreen Hamilton

Ed Daly

**Honeywell**



# Presentation Overview

- ◆ Update
- ◆ Overview of Town/Schools measures
- ◆ Energy Savings/Financials
- ◆ Emissions reductions





- ◆ **Energy Committee/Facility**
- ◆ **Energy Conservation Measure Reviews**
- ◆ **Energy & Infrastructure Renewal Project**
- ◆ **Financial & Legal Reviews**





# Request for Qualifications Comprehensive Energy Management Services

## Final Project Overview

# GHS



GHS	Total Annual	budget price	savings %
Air Sealing	\$2,118	\$ 26,247	3.05%
Energy Management (Boiler's and Air Handlers)	\$14,588	\$ 271,294	17.09%
Replace Existing Boilers with 4 Modular Boilers	\$66,427	\$ 554,886	3.02%
Computer Power Settings Control Software	\$2,121	\$ 29,997	0.82%
	\$ 85,254	\$ 882,424	23.98%



# GMS

GMS	Total Annual	budget price	savings %
Air Sealing	\$1,901	\$ 22,411	2.92%
Energy Management (Boiler and Air Handlers)	\$10,437	\$ 106,209	13.76%
Burner For Boiler and DHW NG conversion	\$47,198	\$ 60,571	0.00%
Computer Power Settings Control Software	\$832	\$ -	0.36%
	\$ 60,368	\$ 189,191	17.03%



# GES

GES	Total Annual	budget price	savings %
Air Sealing	\$1,495	\$ 24,460	2.19%
Energy Management (set back C wing of Building)	\$1,633	\$ 78,625	2.39%
power settings control software	\$2,244	\$ -	0.82%
DHW	\$6,593	\$ 57,167	8.19%
Install VFDs for heating hot water pumps	\$5,682	\$ 40,286	2.07%
	\$ 17,647	\$ 200,537	15.65%



# SGES

SGES	Total Annual	budget price	savings %
Air Sealing	\$722	\$ 9,734	2.12%
Energy Management (Boiler and Air Handlers)	\$6,824	\$ 166,600	13.76%
power settings control software	\$698		0.47%
	\$ 8,244	\$ 176,334	16.36%





# NGES



NGES	Total Annual	budget price	savings %
Air sealing	\$1,309	\$ 19,718	2.66%
Energy Management (Boiler and Air Handlers)	\$13,913	\$ 153,085	18.37%
NG Service to Boiler	\$34,380	\$ 198,336	0.20%
power settings control software	\$752		0.40%
Pipe Insulation	\$1,651	\$ 21,406	3.35%
	\$ 52,005	\$ 392,545	24.97%





# Nelson Library



Nelson Library	Total Annual	budget price	savings %
Air Sealing	\$59	\$ 758	2.05%
	\$ 59	\$ 758	2.05%



# Municipal Center



Municipal Center	Total Annual	budget price	savings %
Roof Replacements	\$5,302	\$ 555,713	15.94%
Air Sealing	\$899	\$ 10,294	2.62%
Option 7 - Water Source Heat Pump and U0.21	\$26,509	\$ 4,244,663	30.09%
power settings control software	\$308	\$ -	0.25%
Repointing Alternate 1	\$0	\$ 200,436	N/A
	\$ 33,018	\$ 5,011,106	48.89%



## Final Project Overview

# Project Overview

- ◆ Project term is 15 or 20 years
- ◆ Project cost \$7,047,894
- ◆ Financing is in process – Tax exempt lease or bond
- ◆ Annual Energy Savings of \$256,595
- ◆ Blended energy savings of 18% of baseline
- ◆ Emissions Reductions

### Total Reduction Of Emissions

Carbon Dioxide (CO<sub>2</sub>)

1,374,935 Pounds

Sulfur Dioxide (SO<sub>2</sub>)

3,064 Pounds

Nitrogen Oxide (NO<sub>x</sub>)

1,399 Pounds



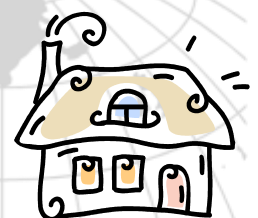
*Auto Reduction  
is equal to:*

*137 Cars*



*Equivalent Trees  
Planted is equal  
to:*

*187 Acres of  
Trees*



*Electric  
Reduction is  
enough for:*

*60 Homes*



# Request for Qualifications

## Comprehensive Energy Management Services

### Final Project Overview

#### 15 YEAR FINANCIAL ANALYSIS

Project Cost	\$	6,852,894		
Contingency Fund	\$	175,000		
Legal Fees	\$	20,000		
Financed Amount*	\$	7,047,894		
			Energy Inflation Rate	3.00%
TAX exempt rate	2.990%		Service Escalation Rate	3.00%
Term	15 Years			

#### TAX EXEMPT LEASING - 15 YEAR TERM

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTAL
Energy Savings	\$256,441	\$264,134	\$272,058	\$280,220	\$288,627	\$297,285	\$306,204	\$315,390	\$324,852	\$334,597	\$344,635	\$354,974	\$365,624	\$376,592	\$387,890	\$4,769,524
Operational Savings	\$20,943	\$21,467	\$22,003	\$22,553	\$23,117	\$23,695	\$24,287	\$24,895	\$25,517	\$26,155	\$26,809	\$27,479	\$28,166	\$28,870	\$29,592	\$375,548
Rebates/Grants to program	\$123,026															\$123,026
<b>TOTAL SAVINGS</b>	<b>\$400,410</b>	<b>\$285,601</b>	<b>\$294,061</b>	<b>\$302,773</b>	<b>\$311,744</b>	<b>\$320,980</b>	<b>\$330,491</b>	<b>\$340,285</b>	<b>\$350,369</b>	<b>\$360,752</b>	<b>\$371,444</b>	<b>\$382,453</b>	<b>\$393,790</b>	<b>\$405,462</b>	<b>\$417,482</b>	<b>\$5,268,098</b>
Project Costs																
Project Financing*	\$647,753	\$532,354	\$540,207	\$548,294	\$556,620	\$565,193	\$574,020	\$583,109	\$592,468	\$602,104	\$612,027	\$622,243	\$632,763	\$643,595	\$643,302	\$8,896,053
Ongoing preventative maintenance	\$18,335	\$18,885	\$19,452	\$20,035	\$20,636	\$21,255	\$21,893	\$22,550	\$23,226	\$23,923	\$24,641	\$25,380	\$26,141	\$26,926	\$27,733	\$341,011
<b>SUB TOTAL COSTS</b>	<b>\$666,088</b>	<b>\$551,239</b>	<b>\$559,659</b>	<b>\$568,329</b>	<b>\$577,256</b>	<b>\$586,448</b>	<b>\$595,913</b>	<b>\$605,659</b>	<b>\$615,694</b>	<b>\$626,027</b>	<b>\$636,667</b>	<b>\$647,623</b>	<b>\$658,905</b>	<b>\$670,521</b>	<b>\$671,035</b>	<b>\$9,237,064</b>
<b>GRAFTON ANNUAL CONTRIBUTION</b>	<b>\$266,000</b>	<b>\$266,000</b>	<b>\$266,000</b>	<b>\$266,000</b>	<b>\$266,000</b>	<b>\$266,000</b>	<b>\$266,000</b>	<b>\$266,000</b>	<b>\$266,000</b>	<b>\$266,000</b>	<b>\$266,000</b>	<b>\$266,000</b>	<b>\$266,000</b>	<b>\$266,000</b>	<b>\$266,000</b>	<b>\$3,990,000</b>
<b>TOTAL COSTS After Grafton Contribution</b>	<b>\$400,088</b>	<b>\$285,239</b>	<b>\$293,659</b>	<b>\$302,329</b>	<b>\$311,256</b>	<b>\$320,448</b>	<b>\$329,913</b>	<b>\$339,659</b>	<b>\$349,694</b>	<b>\$360,027</b>	<b>\$370,667</b>	<b>\$381,623</b>	<b>\$392,905</b>	<b>\$404,521</b>	<b>\$405,035</b>	<b>\$5,247,064</b>
<b>Total Savings</b>	<b>\$400,410</b>	<b>\$285,601</b>	<b>\$294,061</b>	<b>\$302,773</b>	<b>\$311,744</b>	<b>\$320,980</b>	<b>\$330,491</b>	<b>\$340,285</b>	<b>\$350,369</b>	<b>\$360,752</b>	<b>\$371,444</b>	<b>\$382,453</b>	<b>\$393,790</b>	<b>\$405,462</b>	<b>\$417,482</b>	<b>\$5,268,098</b>
<b>ANNUAL CASH FLOW</b>	<b>\$322</b>	<b>\$362</b>	<b>\$403</b>	<b>\$445</b>	<b>\$488</b>	<b>\$533</b>	<b>\$579</b>	<b>\$626</b>	<b>\$675</b>	<b>\$725</b>	<b>\$777</b>	<b>\$830</b>	<b>\$885</b>	<b>\$941</b>	<b>\$12,447</b>	



# Request for Qualifications

## Comprehensive Energy Management Services

### Final Project Overview

#### 20 YEAR FINANCIAL ANALYSIS

Project Cost \$ 6,852,894  
 Contingency Fund \$ 175,000  
 Legal Fees \$ 20,000  
 Financed Amount\* \$ 7,047,894

Energy Inflation Rate 3.00%

TAX exempt rate 4.800%  
 Term 20 Years

Service Escalation Rate 3.00%

#### TAX EXEMPT LEASING-20 YEAR TERM

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TOTAL
Energy Savings	\$256,441	\$264,134	\$272,058	\$280,220	\$288,627	\$297,285	\$306,204	\$315,390	\$324,852	\$334,597	\$344,635	\$354,974	\$365,624	\$376,592	\$387,890	\$399,527	\$411,513	\$423,858	\$436,574	\$449,671	\$6,890,666
Operational Savings	\$20,943	\$21,467	\$22,003	\$22,553	\$23,117	\$23,695	\$24,287	\$24,895	\$25,517	\$26,155	\$26,809	\$27,479	\$28,166	\$28,870	\$29,592	\$30,332	\$31,090	\$31,867	\$32,664	\$33,481	\$534,982
Rebates/Grants to program	\$123,026																				\$123,026
<b>TOTAL SAVINGS</b>	<b>\$400,410</b>	<b>\$285,601</b>	<b>\$294,061</b>	<b>\$302,773</b>	<b>\$311,744</b>	<b>\$320,980</b>	<b>\$330,491</b>	<b>\$340,285</b>	<b>\$350,369</b>	<b>\$360,752</b>	<b>\$371,444</b>	<b>\$382,453</b>	<b>\$393,790</b>	<b>\$405,462</b>	<b>\$417,482</b>	<b>\$429,858</b>	<b>\$442,603</b>	<b>\$455,725</b>	<b>\$469,238</b>	<b>\$483,151</b>	<b>\$7,548,673</b>
Project Costs																					
Project Financing*	\$597,753	\$482,354	\$490,207	\$498,294	\$506,620	\$515,193	\$524,020	\$533,109	\$542,468	\$552,104	\$562,027	\$572,243	\$582,763	\$593,595	\$604,749	\$616,233	\$628,069	\$640,235	\$652,773	\$668,743	\$11,363,543
Ongoing preventative maintenance	\$18,335	\$18,885	\$19,452	\$20,035	\$20,636	\$21,255	\$21,893	\$22,550	\$23,226	\$23,923	\$24,641	\$25,380	\$26,141	\$26,926	\$27,733	\$28,565	\$29,424	\$30,309	\$31,221	\$32,160	\$503,603
<b>SUB TOTAL COSTS</b>	<b>\$616,088</b>	<b>\$501,239</b>	<b>\$509,659</b>	<b>\$518,329</b>	<b>\$527,256</b>	<b>\$536,448</b>	<b>\$545,913</b>	<b>\$555,659</b>	<b>\$565,694</b>	<b>\$576,027</b>	<b>\$586,667</b>	<b>\$597,623</b>	<b>\$608,905</b>	<b>\$620,521</b>	<b>\$632,482</b>	<b>\$644,858</b>	<b>\$659,603</b>	<b>\$672,725</b>	<b>\$686,238</b>	<b>\$703,212</b>	<b>\$11,867,146</b>
GRAFTON ANNUAL CONTRIBUTION	\$216,000	\$216,000	\$216,000	\$216,000	\$216,000	\$216,000	\$216,000	\$216,000	\$216,000	\$216,000	\$216,000	\$216,000	\$216,000	\$216,000	\$216,000	\$217,000	\$217,000	\$217,000	\$217,000	\$220,060	\$4,328,060
<b>TOTAL COSTS After Grafton Contribution</b>	<b>\$400,088</b>	<b>\$285,239</b>	<b>\$293,659</b>	<b>\$302,329</b>	<b>\$311,256</b>	<b>\$320,448</b>	<b>\$329,913</b>	<b>\$339,659</b>	<b>\$349,694</b>	<b>\$360,027</b>	<b>\$370,667</b>	<b>\$381,623</b>	<b>\$392,905</b>	<b>\$404,521</b>	<b>\$416,482</b>	<b>\$429,858</b>	<b>\$442,603</b>	<b>\$455,725</b>	<b>\$469,238</b>	<b>\$483,151</b>	<b>\$7,539,086</b>
<b>Total Savings</b>	<b>\$400,410</b>	<b>\$285,601</b>	<b>\$294,061</b>	<b>\$302,773</b>	<b>\$311,744</b>	<b>\$320,980</b>	<b>\$330,491</b>	<b>\$340,285</b>	<b>\$350,369</b>	<b>\$360,752</b>	<b>\$371,444</b>	<b>\$382,453</b>	<b>\$393,790</b>	<b>\$405,462</b>	<b>\$417,482</b>	<b>\$429,858</b>	<b>\$442,603</b>	<b>\$455,725</b>	<b>\$469,238</b>	<b>\$483,151</b>	<b>\$7,548,673</b>
<b>ANNUAL CASH FLOW</b>	<b>\$322</b>	<b>\$362</b>	<b>\$403</b>	<b>\$445</b>	<b>\$488</b>	<b>\$533</b>	<b>\$579</b>	<b>\$626</b>	<b>\$675</b>	<b>\$725</b>	<b>\$777</b>	<b>\$830</b>	<b>\$885</b>	<b>\$941</b>	<b>\$1,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	